



Volunteer Lake Assessment Program Individual Lake Reports

PEA PORRIDGE POND, BIG, MADISON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,431	Max. Depth (m):	13.7	Flushing Rate (yr ⁻¹)	1.5	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	142	Mean Depth (m):	4	P Retention Coef:	0.63	1979	MESOTROPHIC	
Shore Length (m):	3,900	Volume (m ³):	2,295,500	Elevation (ft):	648	2001	OLIGOTROPHIC	

TROPHIC CLASSIFICATION

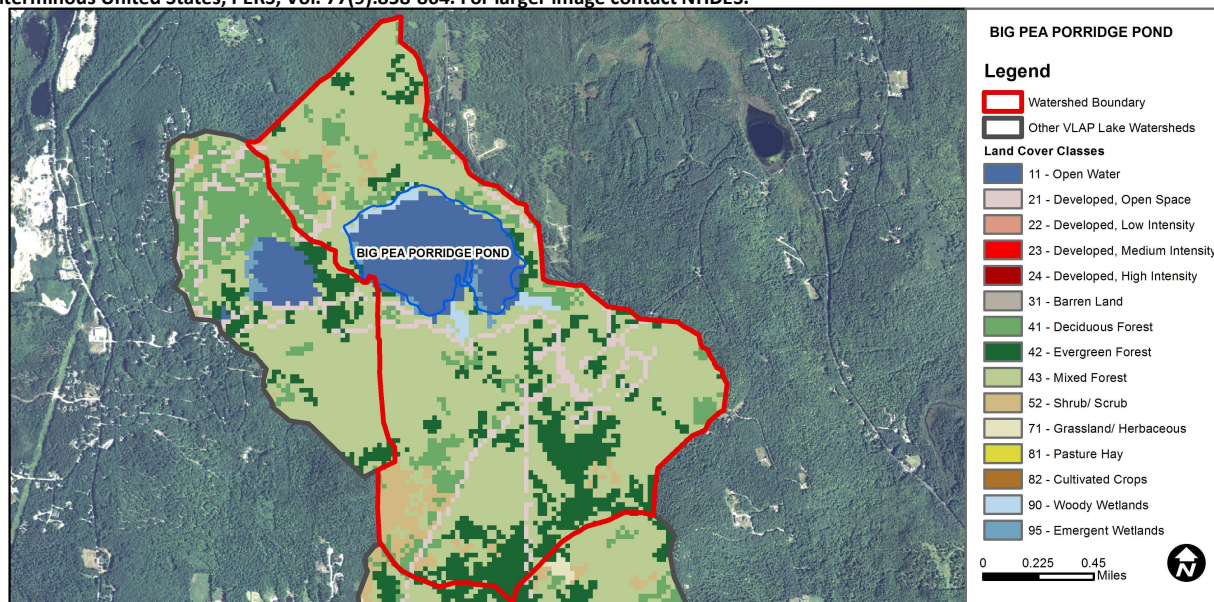
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.48	Deciduous Forest	8.39	Pasture Hay	0
Developed-Low Intensity	0.05	Evergreen Forest	14.52	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	53.29	Woody Wetlands	1.33
Developed-High Intensity	0	Shrub-Scrub	4.71	Emergent Wetlands	0.66



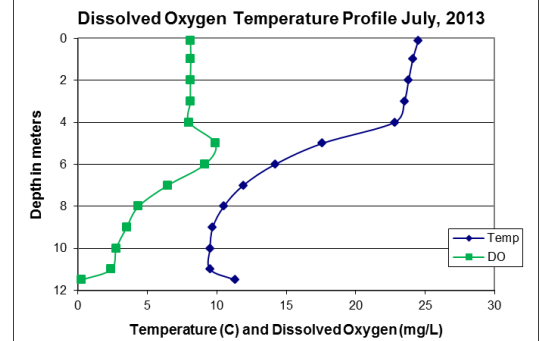
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

BIG PEA PORRIDGE POND, MADISON, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- CHLOROPHYLL-A:** Chlorophyll levels decreased slightly from June to July and were much less than the state median. Historical trend analysis indicates stable chlorophyll with low variability between years.
- CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity levels were slightly greater than the state median. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began. Spring chloride sampling revealed elevated chloride levels at stations #10, 11 and 12 and slightly elevated chloride at stations #8, 14 and 19.
- E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- TOTAL PHOSPHORUS:** Epilimnetic phosphorus increased from 2012 and was slightly higher in June following significant storm events, however average levels remained below the state median. Metalimnetic and hypolimnetic phosphorus levels remained low. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Phosphorus levels were elevated in Muddy Beach Inlet in July potentially due to significant storm event and in August potentially due to low flow.
- TRANSPARENCY:** Transparency improved as the summer progressed and was greater than the state median. However, historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- TURBIDITY:** Deep spot turbidity was low throughout the summer. Muddy Beach Inlet turbidity was elevated in July and August.
- pH:** pH levels were generally less than the desirable range of 6.5 - 8.0 units. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years.
- RECOMMENDED ACTIONS:** The worsening epilimnetic conductivity trend is concerning. Try to address the elevated chloride levels at specific stations listed above to reduce the impact on in lake conductivity. The UNH Technology Transfer Center (T2) offers salt applicator certification through the Green SnowPro Program and offers a list of salt reduction best management practices. The increased frequency and intensity of storm events highlights the importance of reducing stormwater runoff from lake and watershed properties. DES' "Homeowner's Guide to Stormwater Management" is a good resource.



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

- Chloride:** < 230 mg/L (chronic)
- E. coli:** > 88 cts/100 mL – public beach
- E. coli:** > 406 cts/100 mL – surface waters
- Turbidity:** > 10 NTU above natural level
- pH:** 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Station	Table 1. 2013 Average Water Quality Data for BIG PEA PORRIDGE POND									
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	pH
							NVS	VS		
#6 Edelweiss Drive			3							
#7 Edelweiss Drive			3							
#7b Lot 99 Ed			3							
#8 Brenner Drive			23							
#10 Airlberg			150							
#11			150							
#11a Allard Hill Road			8							
#12 Porridge Shore Drive			40		10					
#14 Modock Hill Rd			17							
#14a Bickford Rd			3							
#16 Edelweiss Drive			7							
#19 Tasker Hill Rd			14							
Big Rock Inlet			10	57.7	10	11			1.24	6.0
Epilimnion	3.30	2.03	9	47.3		7	4.30	4.60	0.45	6.6
Metalimnion				47.3		7			0.83	6.3
Hypolimnion				47.4		8			0.81	6.0
Muddy Beach Inlet			10	59.6		19			3.72	6.3
Outlet				47.3		3			0.51	6.6
Shore Beach					2					
Thusis Beach					4					

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
Conductivity	Degrading	Data significantly increasing.	Transparency	Degrading	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

